REMARKS

This amendment is responsive to the Office Action of April 10, 2001. Reexamination and reconsideration of the application are respectfully requested.

The Office Action

Claim 20 stands rejected under 35 U.S.C. §112, first paragraph.

Claims 18 and 20-22 stand rejected under 35 U.S.C. §102(e) as being anticipated by Kaufman (U.S. Patent No. 4,829,252).

Claims 18-22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Matsutani (U.S. Patent No. 4,875,485).

Amendments to the Application

The amendments to the application are highlighted with redline/strikeout text in the "Version with Markings to Show Changes Made," which is attached as EXHIBIT A. A "clean" set of **claims 18-22**, which incorporates the amendments indicated by the redline/strikeout text, is included above.

35 U.S.C. §112, First Paragraph

Column 1, lines 22-25 of the application as originally filed states:

> ... the MR apparatus together with the associated patient handling equipment requires a large floor area to accommodate it, i.e. has a large so-called "footprint".

Therefore, the floor called for in line 6 of **claim 20** is provided for in the specification. Furthermore, such a floor is inherently needed to support the NMR polarizing magnet and bed called for in **claim 20**. For this reason, applicants believe all the claims meet the statutory requirements of 35 U.S.C. §112.

The Claims of the Present Application Distinguish Over the Cited References

As a brief review, the present application is directed to an MRI system including an NMR polarizing magnet. A patient

support member **47** moves a subject into and out of an imaging volume. As illustrated in FIGURE 9, the support member **47** is capable of translational movement and may be rotated through 90° to the position indicated by dotted line **59**. See column 4, lines 49-63 of the application as originally filed.

Claim 18 calls for an MRI system having upper and lower horizontal poles defining a gap. A movable patient transport supports a horizontal patient bed and passes across the lower magnet pole while interjecting the patient bed into the gap. The patient transport has a first position fully extended away from the polarizing magnet and a second position in the gap. The patient transport is rotatable in a plane substantially parallel to the horizontal poles in any of the first position, the second position, and a plurality of positions therebetween.

Kaufman (U.S. Patent No. 4,829,252) discloses an MRI system with open access to a patient image volume. A patient transport structure **500** is utilized for transporting a patient into and out of an imaging volume **50** through open access ports **300, 302** parallel to a z-axis. Transverse open access ports **400, 402** are optionally included as shown in FIGURES 6 and 7. Although Kaufman shows the patient transport structure **500** moving into and out of an imaging volume **50**, it provides very little disclosure regarding the details of how the transport structure **500** operates. FIGURE 6 of Kaufman merely shows arrows indicating that the transport structure **500** moves linearly into and out of the access ports **300, 302**. Kaufman is not concerned with a transport structure that rotates within a plane substantially parallel to the horizontal poles in any of the first position, the second position, and a plurality of positions therebetween, as called for in **claim 18**.

Matsutani also discloses a magnetic resonance system having a transport system including a patient bed or platform **2** attached to an up/down drive unit **30**. With reference to FIGURE 9, Matsutani discloses the platform having a y-direction drive unit **57** and an x-direction drive unit **59**. Therefore, Matsutani is merely concerned with positioning the transport system in the up/down direction, the x-direction, and the

y-direction. Matsutani fails to disclose, and is not concerned with, any means for rotating the transport system in a plane substantially parallel to horizontal poles, as called for in **claim 18**.

As discussed above, neither Kaufman nor Matsutani discloses, or is concerned with, any means for rotating the transport system in a plane substantially parallel to horizontal poles, as called for in **claim 18**. Therefore, **claim 18** is patentable over Kaufman and Matsutani, either taken alone or in combination.

Dependent **claim 19**, which merely further patentably defines the detailed subject matter of **claim 18**, is also believed to patentably define over the applied references, as well as the remaining cited art, in any combination.

Claim 20 calls for a method for positioning a patient for MRI using an NMR polarizing magnet having a C-shaped cross-section. The method includes placing the patient on a movable and rotatable bed while the bed is wholly outside of the NMR polarizing magnet. The bed is moved and rotated in a horizontal plane (substantially parallel to a floor) towards the NMR polarizing magnet and into juxta-position with an open gap of the C-shaped magnet. The bed is at least one of moved and rotated in the plane across a lower pole face of the magnet and into the open gap. In this manner, unobstructed adjacent access is left to the patient along an entire patient body side while the patient is disposed within the open gap.

Neither Kaufman nor Matsutani discloses, or is concerned with, any means for rotating a patient bed in a horizontal plane, as called for in **claim 20**. Therefore, **claim 20** is patentable over Kaufman and Matsutani, either taken alone or in combination.

Claim 21 calls for an MRI system including an NMR polarizing magnet having opposed upper and lower horizontal poles defining an MRI image volume within a gap. A movable and rotatable patient transport supports a horizontal patient bed. The patient support moves and rotates in a plane substantially parallel to the horizontal poles and passes across the lower pole

while moving the patient bed into an imaging position in the gap. The patient bed moves and rotates between the imaging position and a displaced position wholly outside of the upper and lower poles.

Neither Kaufman nor Matsutani discloses, or is concerned with, any means for rotating a patient bed in a plane substantially parallel to a floor, as called for in **claim 21**. Therefore, **claim 21** is patentable over Kaufman and Matsutani, either taken alone or in combination.

Claim 22 calls for a method for positioning a patient for MRI using an NMR polarizing magnet having opposed upper and lower horizontal poles defining an MRI image volume within an open gap between the poles. At a location wholly outside of the upper and lower horizontal poles, the patient is placed on a movable and rotatable bed. The bed is moved and rotated in a plane substantially parallel to the horizontal poles into juxta-position with the open gap. The bed is continued to be moved into the open gap while moving and rotating the bed over a face of the lower pole.

Neither Kaufman nor Matsutani discloses, or is concerned with, any means for rotating a patient bed in a plane substantially parallel to a floor, as called for in **claim 22**. Therefore, **claim 22** is patentable over Kaufman and Matsutani, either taken alone or in combination.

CONCLUSION

For the reasons set forth above, it is requested that **claim 1-13 and 18-22** be allowed.

Respectfully submitted,

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EXHIBIT A

Version with Markings to Show Changes Made

18. In an MRI system including an NMR polarizing magnet having opposed upper and lower horizontal poles defining a MRI image volume within a gap between the poles that is open about at least three sides, the improvement comprising:

a movable patient transport supporting a horizontal patient bed and passing across said lower magnet pole while interjecting the patient bed into said gap so as to permit substantially adjacent patient access along a side of the patient while the patient is positioned within the MRI image volume,

said patient transport having a first position wholly outside of the gap, and at said first position the movable patient transport being enabled to allow movement of the bed, and

said patient transport having a second position in the gap and fixed with respect to the upper and lower magnet poles during an MRI imaging procedure, the patient transport being rotatable in a plane substantially parallel to the horizontal poles in any of the first position, the second position, and a plurality of positions therebetween.

20. A method for positioning a patient for MRI using an NMR polarizing magnet with a C-shaped cross-section, said method comprising:

placing said patient on a movable and rotatable bed while said bed is wholly outside of the NMR polarizing magnet;

moving and rotating said bed in a horizontal plane towards said NMR polarizing magnet and into juxta-position with an open gap of the C-shaped magnet; and~~,~~

at least one of moving and rotating said bed in the plane across a lower pole face of the magnet and into said open gap thus leaving unobstructed adjacent access to the patient along an entire patient body side while the patient is disposed within said open gap.

21. In an MRI system including an NMR polarizing magnet having opposed upper and lower horizontal poles defining

an MRI image volume within a gap between the poles that is open on at least three sides, the improvement comprising:

a movable and rotatable patient transport supporting a horizontal patient bed, the ~~movable~~ patient transport moving and rotating in a plane substantially parallel to the horizontal poles and passing across said lower pole while moving the patient bed into an imaging position in the gap, thereby permitting substantially adjacent patient access along a side of the patient while the patient transport is positioned in the imaging position and the patient is positioned within the MRI image volume, and

the patient bed moving and rotating between the imaging position and a displaced position wholly outside of the upper and lower poles.

22. A method for positioning a patient for MRI using an NMR polarizing magnet having opposed upper and lower horizontal poles defining an MRI image volume within an open gap between the poles that is open on at least three sides, the method comprising:

at a location wholly outside of the upper and lower horizontal poles, placing said patient on a movable and rotatable bed;

moving and rotating said bed in a plane substantially parallel to the horizontal poles into juxta-position with said open gap; and

continuing to move said bed into said open gap while moving said bed over a face of the lower pole, thus leaving unobstructed adjacent access to the patient along an entire patient body side while the patient is disposed in said open gap.